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SEQUENCE LISTING

<110> Wu, Hongjiang
Crooke, Stanley T.

<120> Human RNase III and Compositions and Uses Thereof

<130> ISPH-0522
<140> US 09/900,425
<141> 2001-07-06

<150> US 09/479,783
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<151> 1997-06-06

<150> US 80/659,440
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 35 40 45

Val Gln Tyr Gln Tyr Glu Pro Pro Ser Ala Pro Ser Thr Thr Phe Ser
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Asn Ser Pro Ala Pro Asn Phe Leu Pro Pro Arg Pro Asp Phe Val Pro
 65 70 75 80

Phe Pro Pro Pro Met Pro Pro Ser Ala Gln Gly Pro Leu Pro Pro Cys
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Pro Ile Arg Pro Pro Phe Pro Asn His Gln Met Arg His Pro Phe Pro
 100 105 110

Val Pro Pro Cys Phe Pro Pro Met Pro Pro Pro Met Pro Cys Pro Asn
 115 120 125

Asn Pro Pro Val Pro Gly Ala Pro Pro Gly Gln Gly Thr Phe Pro Phe
 130 135 140

Met Met Pro Pro Pro Ser Met Pro His Pro Pro Pro Pro Val Met
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Pro Gln Gln Val Asn Tyr Gln Tyr Pro Pro Gly Tyr Ser His His Asn
 165 170 175

Phe Pro Pro Pro Ser Phe Asn Ser Phe Gln Asn Asn Pro Ser Ser Phe
 180 185 190

Leu Pro Ser Ala Asn Asn Ser Ser Ser Pro His Phe Arg His Leu Pro
 195 200 205

Pro Tyr Pro Leu Pro Lys Ala Pro Ser Glu Arg Arg Ser Pro Glu Arg
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Leu Lys His Tyr Asp Asp His Arg His Arg Asp His Ser His Gly Arg
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Gly Glu Arg His Arg Ser Leu Asp Arg Arg Glu Arg Gly Arg Ser Pro
 245 250 255

Asp Arg Arg Arg Gln Asp Ser Arg Tyr Arg Ser Asp Tyr Asp Arg Gly
 260 265 270

Arg Thr Pro Ser Arg His Arg Ser Tyr Glu Arg Ser Arg Glu Arg Glu
 275 280 285

Arg Glu Arg His Arg His Arg Asp Asn Arg Arg Ser Pro Ser Leu Glu
 290 295 300

Arg Ser Tyr Lys Lys Glu Tyr Lys Arg Ser Gly Arg Ser Tyr Gly Leu
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Ser Val Val Pro Glu Pro Ala Gly Cys Thr Pro Glu Leu Pro Gly Glu
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Ile Ile Lys Asn Thr Asp Ser Trp Ala Pro Pro Leu Glu Ile Val Asn
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His Arg Ser Pro Ser Arg Glu Lys Lys Arg Ala Arg Trp Glu Glu Glu
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Lys Asp Arg Trp Ser Asp Asn Gln Ser Ser Gly Lys Asp Lys Asn Tyr
 370 375 380

Thr Ser Ile Lys Glu Lys Glu Pro Glu Glu Thr Met Pro Asp Lys Asn
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Glu Glu Glu Glu Glu Leu Leu Lys Pro Val Trp Ile Arg Cys Thr
 405 410 415

His Ser Glu Asn Tyr Tyr Ser Ser Asp Pro Met Asp Gln Val Gly Asp
 420 425 430

Ser Thr Val Val Gly Thr Ser Arg Leu Arg Asp Leu Tyr Asp Lys Phe
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Glu Glu Glu Leu Gly Ser Arg Gln Glu Lys Ala Lys Ala Ala Arg Pro
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Pro Trp Glu Pro Pro Lys Thr Lys Leu Asp Glu Asp Leu Glu Ser Ser
 465 470 475 480

Ser Glu Ser Glu Cys Glu Ser Asp Glu Asp Ser Thr Cys Ser Ser Ser
 485 490 495

Ser Asp Ser Glu Val Phe Asp Val Ile Ala Glu Ile Lys Arg Lys Lys
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Ala His Pro Asp Arg Leu His Asp Glu Leu Trp Tyr Asn Asp Pro Gly

515

520

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Gln Met Asn Asp Gly Pro Leu Cys Lys Cys Ser Ala Lys Ala Arg Arg
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Thr Gly Ile Arg His Ser Ile Tyr Pro Gly Glu Glu Ala Ile Lys Pro
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Cys Arg Pro Met Thr Asn Asn Ala Gly Arg Leu Phe His Tyr Arg Ile
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Thr Val Ser Pro Pro Thr Asn Phe Leu Thr Asp Arg Pro Thr Val Ile
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Glu Tyr Asp Asp His Glu Tyr Ile Phe Glu Gly Phe Ser Met Phe Ala
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His Ala Pro Leu Thr Asn Ile Pro Leu Cys Lys Val Ile Arg Phe Asn
 610 615 620

Ile Asp Tyr Thr Ile His Phe Ile Glu Glu Met Met Pro Glu Asn Phe
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Cys Val Lys Gly Leu Glu Leu Phe Ser Leu Phe Leu Phe Arg Asp Ile
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Leu Glu Leu Tyr Asp Trp Asn Leu Lys Gly Pro Leu Phe Glu Asp Ser
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Pro Pro Cys Cys Pro Arg Phe His Phe Met Pro Arg Phe Val Arg Phe
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Leu Pro Asp Gly Gly Lys Glu Val Leu Ser Met His Gln Ile Leu Leu
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Tyr Leu Leu Arg Cys Ser Lys Ala Leu Val Pro Glu Glu Glu Ile Ala
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Asn Met Leu Gln Trp Glu Glu Leu Glu Trp Gln Lys Tyr Ala Glu Glu
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Cys Lys Gly Met Ile Val Thr Asn Pro Gly Thr Lys Pro Ser Ser Val
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Arg Ile Asp Gln Leu Asp Arg Glu Gln Phe Asn Pro Asp Val Ile Thr
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Ala Gly Asp Pro Gln Tyr Gln Lys Leu Trp Lys Ser Tyr Val Lys Leu
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Arg His Leu Leu Ala Asn Ser Pro Lys Val Lys Gln Thr Asp Lys Gln
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Lys Leu Ala Gln Arg Glu Glu Ala Leu Gln Lys Ile Arg Gln Lys Asn
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Thr Met Arg Arg Glu Val Thr Val Glu Leu Ser Ser Gln Gly Phe Trp
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 Lys Thr Gly Ile Arg Ser Asp Val Cys Gln His Ala Met Met Leu Pro
 850 855 860
 Val Leu Thr His His Ile Arg Tyr His Gln Cys Leu Met His Leu Asp
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 Lys Leu Ile Gly Tyr Thr Phe Gln Asp Arg Cys Leu Leu Gln Leu Ala
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 Met Thr His Pro Ser His His Leu Asn Phe Gly Met Asn Pro Asp His
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 Ala Arg Asn Ser Leu Ser Asn Cys Gly Ile Arg Gln Pro Lys Tyr Gly
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 Asp Arg Lys Val His His Met His Met Arg Lys Lys Gly Ile Asn Thr
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 Leu Ile Asn Ile Met Ser Arg Leu Gly Gln Asp Asp Pro Thr Pro Ser
 945 950 955 960
 Arg Ile Asn His Asn Glu Arg Leu Glu Phe Leu Gly Asp Ala Val Val
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 Asp Leu Arg Glu Val Trp Leu Asn Tyr Pro Leu His Pro Leu Gln Leu
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 Val Arg Leu Leu Ala Arg Ala Phe Thr Leu Arg Thr Val Gly Phe Asn
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Ile Met Gln Leu Val Ala Thr Glu Tyr Leu Phe Ile His Phe Pro Asp
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 His His Glu Gly His Leu Thr Leu Leu Arg Ser Ser Leu Val Asn Asn
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35

40

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Gly Leu Ala Thr Tyr Arg Thr Ala Leu Val Gln Asn Arg Asn Leu Ala
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Thr Leu Ala Lys Asn Cys Arg Ile Asp Glu Met Leu Gln Tyr Ser His
 65 70 75 80

Gly Ala Asp Leu Ile Asn Val Ala Glu Phe Lys His Ala Leu Ala Asn
 85 90 95

Ala Phe Glu Ala Val Met Ala Ala Ile Tyr Leu Asp Gly Gly Leu Ala
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Pro Cys Asp Val Ile Phe Ser Lys Ala Met Tyr Gly His Gln Pro Val
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Leu Lys Glu Lys Trp Asp His Ile Asn Glu His Glu Leu Lys Arg Glu
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Asp Pro Gln Gly Asp Arg Asp Leu Ser Phe Ile Thr Pro Thr Leu Ser
 145 150 155 160

Thr Phe His Ala Leu Glu Glu Arg Leu Gly Ile Gln Phe Asn Asn Ile
 165 170 175

Arg Leu Leu Ala Lys Ala Phe Thr Arg Arg Asn Ile Pro Asn Asn Asp
 180 185 190

Leu Thr Lys Gly His Asn Gln Arg Leu Glu Trp Leu Gly Asp Ser Val
 195 200 205

Leu Gln Leu Ile Val Ser Asp Phe Leu Tyr Arg Arg Phe Pro Tyr His
 210 215 220

His Glu Gly His Met Ser Leu Leu Arg Thr Ser Leu Val Ser Asn Gln
 225 230 235 240

Thr Gln Ala Val Val Cys Asp Asp Leu Gly Phe Thr Glu Phe Val Ile
 245 250 255

Lys Ala Pro Tyr Lys Thr Pro Glu Leu Lys Leu Lys Asp Lys Ala Asp
 260 265 270

Leu Val Glu Ala Phe Ile Gly Ala Leu Tyr Val Asp Arg Gly Ile Glu
 275 280 285

His Cys Arg Ala Phe Ile Arg Ile Val Phe Cys Pro Arg Leu Lys His
 290 295 300

Phe Ile Glu Ser Glu Lys Trp Asn Asp Ala Lys Ser His Leu Gln Gln
 305 310 315 320

Trp Cys Leu Ala Met Arg Asp Pro Ser Ser Ser Glu Pro Asp Met Pro
 325 330 335

Glu Tyr Arg Val Leu Gly Ile Glu Gly Pro Thr Asn Asn Arg Ile Phe
 340 345 350

Lys Ile Ala Val Tyr Tyr Lys Gly Lys Arg Leu Ala Ser Ala Ala Glu
 355 360 365
 Ser Asn Val His Lys Ala Glu Leu Arg Val Ala Glu Leu Ala Leu Ala
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 35 40 45

 Ile Arg Lys Leu Met Phe Ala Met Lys Ala Leu Leu Glu Glu Thr Lys
 50 55 60

 His Ser Thr Lys Asp Asp Val Asn Leu Val Ile Pro Gly Ser Thr Trp
 65 70 75 80

 Ser His Ile Glu Gly Val Tyr Glu Met Leu Lys Ser Arg His Asp Arg
 85 90 95

 Gln Asn Glu Pro Val Ile Glu Glu Pro Ser Ser His Pro Lys Asn Gln
 100 105 110

 Lys Asn Gln Glu Asn Asn Glu Pro Thr Ser Glu Glu Phe Glu Glu Gly
 115 120 125

 Glu Tyr Pro Pro Pro Leu Pro Pro Leu Arg Ser Glu Lys Leu Lys Glu
 130 135 140

 Gln Val Phe Met His Ile Ser Arg Ala Tyr Glu Ile Tyr Pro Asn Gln
 145 150 155 160

 Ser Asn Pro Asn Glu Leu Leu Asp Ile His Asn Glu Arg Leu Glu Phe
 165 170 175

 Leu Gly Asp Ser Phe Phe Asn Leu Phe Thr Thr Arg Ile Ile Phe Ser
 180 185 190

 Lys Phe Pro Gln Met Asp Glu Gly Ser Leu Ser Lys Leu Arg Ala Lys
 195 200 205

Phe Val Gly Asn Glu Ser Ala Asp Lys Phe Ala Arg Leu Tyr Gly Phe
 210 215 220

Asp Lys Thr Leu Val Leu Ser Tyr Ser Ala Glu Lys Asp Gln Leu Arg
 225 230 235 240

Lys Ser Gln Lys Val Ile Ala Asp Thr Phe Glu Ala Tyr Leu Gly Ala
 245 250 255

Leu Ile Leu Asp Gly Gln Glu Glu Thr Ala Phe Gln Trp Val Ser Arg
 260 265 270

Leu Leu Gln Pro Lys Ile Ala Asn Ile Thr Val Gln Arg Pro Ile Asp
 275 280 285

Lys Leu Ala Lys Ser Lys Leu Phe His Lys Tyr Ser Thr Leu Gly His
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Ile Glu Tyr Arg Trp Pro Ala Cys Val Asp Gly Ala Gly Gly Ser Ala
 305 310 315 320

Glu Gly Tyr Val Ile Ala Cys Ile Phe Asn Gly Lys Glu Val Ala Arg
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 35 40 45

Val Ile Gln Leu Glu His Ala Val Thr Lys Leu Val Glu Ser Tyr Asn
 50 55 60

Lys Ile Ile Glu Leu Ser Pro Asn Leu Val Ala Tyr Asn Glu Ala Val
 65 70 75 80

Asn Asn Gln Asp Arg Val Pro Val Gln Ile Leu Pro Ser Leu Ser Arg
 85 90 95

Tyr Gln Leu Lys Leu Ala Ala Glu Leu Lys Thr Leu His Asp Leu Lys
 100 105 110

Lys Asp Ala Ile Leu Thr Glu Ile Thr Asp Tyr Glu Asn Glu Phe Asp
 115 120 125
 Thr Glu Gln Lys Gln Pro Ile Leu Gln Glu Ile Ser Lys Ala Asp Met
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 Val Lys Ala Thr Lys Trp Pro Pro Lys Leu Pro Glu Ile Gln Asp Leu
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 Val Tyr Leu Ser Gly Ser Glu Met Ile Asn Ala His Asn Glu Arg Leu
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 275 280 285
 Asn Phe His Glu Lys Leu Lys Thr Asn Phe Asp Leu Lys Asp Glu Asn
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 Ser Asn Phe Gln Asn Gly Lys Leu Lys Leu Tyr Ala Asp Val Phe Glu
 305 310 315 320
 Ala Tyr Ile Gly Leu Met Glu Asp Asp Pro Arg Asn Asn Leu Pro
 325 330 335
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 340 345 350
 Ala Thr Arg Asn Gln Val Ala Leu Glu Lys Thr Asp Lys Leu Asp Met
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 Asn Ala Lys Arg Gln Leu Tyr Ser Leu Ile Gly Tyr Ala Ser Leu Arg
 370 375 380
 Leu His Tyr Val Thr Val Lys Lys Pro Thr Ala Val Asp Pro Asn Ser
 385 390 395 400
 Ile Val Glu Cys Arg Val Gly Asp Gly Thr Val Leu Gly Thr Gly Val
 405 410 415
 Gly Arg Asn Ile Lys Ile Ala Gly Ile Arg Ala Ala Glu Asn Ala Leu
 420 425 430

Arg Asp Lys Lys Met Leu Asp Phe Tyr Ala Lys Gln Arg Ala Ala Ile
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Arg Lys Phe Ser Asp Thr Ser
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Ser Ser Lys His Asn Glu Arg Leu Glu Phe Leu Gly Asp Ser Ile Leu
 35 40 45

Ser Tyr Val Ile Ala Asn Ala Leu Tyr His Arg Phe Pro Arg Val Asp
 50 55 60

Glu Gly Asp Met Ser Arg Met Arg Ala Thr Leu Val Arg Gly Asn Thr
 65 70 75 80

Leu Ala Glu Leu Ala Arg Glu Phe Glu Leu Gly Glu Cys Leu Arg Leu
 85 90 95

Gly Pro Gly Glu Leu Lys Ser Gly Gly Phe Arg Arg Glu Ser Ile Leu
 100 105 110

Ala Asp Thr Val Glu Ala Leu Ile Gly Gly Val Phe Leu Asp Ser Asp
 115 120 125

Ile Gln Thr Val Glu Lys Leu Ile Leu Asn Trp Tyr Gln Thr Arg Leu
 130 135 140

Asp Glu Ile Ser Pro Gly Asp Lys Gln Lys Asp Pro Lys Thr Arg Leu
 145 150 155 160

Gln Glu Tyr Leu Gln Gly Arg His Leu Pro Leu Pro Thr Tyr Leu Val
 165 170 175

Val Gln Val Arg Gly Glu Ala His Asp Gln Glu Phe Thr Ile His Cys
 180 185 190

Gln Val Ser Gly Leu Ser Glu Pro Val Val Gly Thr Gly Ser Ser Arg
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Arg Lys Ala Glu Gln Ala Ala Ala Glu Gln Ala Leu Lys Lys Leu Glu
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Leu Glu
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Asp Ile Lys Lys
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